

What are the best practices for using AI to augment and enhance rather than degrade cognitive skills and learning?

Greg Feist, August 2026

**From my Psych1 Lecture Slides
*Using AI to Enhance Rather than Degrade
Your Thinking and Learning Skills***

- It is not whether you use AI but HOW you use it that determines whether you become “smarter” or “dumber” after using it
- Two basic ways to use AI:
 1. **Passively**: let it do your work; cognitively off-load your work. Your cognitive skills decline.
 2. **Actively & Critically**: you do the work and have AI ask you about it, and go back and forth with the AI; have it push back on you and you push back/challenge it. Your cognitive skills get enhanced.
- Learning only happens when you are questioned/challenged and you know how to question/challenge. You need push back and you need to push back on what you are given. Don't just accept it.
- If it is “easy”, you are not learning!

“What Are Best Practices For Using AI to Enhance Learning?”

(with citations, Aug 19 2026)

The core idea for best practices in using AI in general and especially in the classroom is that learning comes from effort. So, the question is: *which* effort is the learning, and which is incidental? AI should absorb the incidental effort and protect — or increase — the effort that constitutes the target skill.

Generate before you consult. Students should *always* first attempt the problem, draft an argument, or predict an answer and only then feed it back into the AI. This way, the AI model enhances thinking rather than replaces it. Using AI first is where most cognitive degradation happens. For example, Fan et al.'s (2025) "metacognitive laziness" finding and the MIT EEG work (Kosmyna et al., 2025) both describe people who produced better answers/documents, and yet learned and retained less because they over-relied on AI (i.e., had it do first drafts).

Invert the role: make the model ask, and the student provides answers. Have AI generate retrieval questions, mock exam items, or "explain why this is wrong" prompts from the reading. Then the student should answer these questions cold, before seeing its answer. This is one of the most effective uses of AI because coming up with questions is less important than knowing how to answer them.

Teach it back. The student should explain a concept to the AI model and then ask it to identify gaps, ambiguities, or places where the student's explanation is misleading. Human understanding first, and then feedback from AI (and then checking the AI's feedback). Iterative learning.

Use it adversarially. Ask the AI for the strongest objection, the best counter-model, and for assumptions they didn't examine. Explicitly instruct the AI model not to validate with too much praise. Sycophancy is one of the main ways these tools degrade thinking — agreeable fluency feels like understanding and produces in the student a sense of knowing more than they actually do.

Don't allow AI to simply give answers. Instructing the AI to "act as a Socratic tutor; ask one question at a time, never give the solution, tell me when I'm wrong but not why" changes the interaction substantially. Bastani et al.'s (2025) Turkish high school study illustrated this: unrestricted GPT access *hurt* subsequent unaided performance, while a guard-railed tutor version did not. The guardrails were the intervention.

Test yourself without it. Whatever a student practices with AI, they should also test themselves sometime later without it. Performance-during-training and learning are two different things. If you never close the loop with an unassisted delayed test, we don't get a sense of whether learning really occurred or not.

Offload deliberately, not by default. Decide in advance what's legitimately outsourceable. If the objective is statistical reasoning, offloading R syntax like *lm()* is fine; offloading the choice of statistical model and what it means and how to interpret it is not. If the student offloads too much, this habit will grow and grow and the eventually the skill atrophies and dies.

Verify. Treat outputs as claims that require checking, and treat the checking as the exercise rather than a burden. Learning to vet the information and to push back and not accept everything the AI produces is one of the most important critical thinking skills students need to learn. Challenge and question—don't mindlessly accept. Verify!

In sum, it is not whether but how AI is used that matters. Enhanced learning is all about active and critical use of AI, rather than passive cognitive-offloading. The former builds cognitive skills whereas the latter degrades them. A principle of cognitive psychology is humans are "cognitive misers". We all take the easy route when it is available and we don't know otherwise. But it is up to us to teach students to use this technology not as misers but as masters, and to critically and in a way that enhances their learning and thinking. If it is easy and frictionless, they are not learning.

I know this is a tall order and by no means can we be expected to incorporate all of these evidence-based best-practice principles in our teaching. But we can pick a few of them. It can enhance learning if it is used actively and as an assistant rather than a replacement for thinking. And most importantly, it will provide crucial life-long learning skills for our students.

AI and Learning References

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